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Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of the claims in the application.

All claims currently being amended are shown with deleted text struckthrough or double bracketed and new text underlined. Additionally, the status of each claim is indicated in parenthetical expression following the claim number.

Claims 21, 24 - 28, 31 - 36, 38 - 41, and 44 - 48 remain.

Claims 21 - 48 are being amended.

Claims 1 – 20, 22 – 23, 29 – 30, 37, and 42 - 43 have been cancelled.

WHAT IS CLAIMED IS:

1 - 20. Cancel

21. [[15.]] (Currently Amended) A gamma correction circuit, comprising:

input circuitry responsive to an input data value for generating first and second preliminary values based on data selected from first and second correction curves;

first selection circuitry for selecting in response to a gamma value the first and second correction curves from a plurality of at least three correction curves;

second selection circuitry for dynamically selecting in response to the input data value one of first and second sets of gamma gain value matrices;

gain generation circuitry responsive to the [[a]] gamma value for generating first and second gain values from the selected one of first and second sets of gamma gain value matrices [[function]].; and

output circuitry for combining the first and second preliminary values and the first and second gain values to generate a corrected output value.

22. [[16.]] (Cancelled)

23. [[17.]] (Cancelled)

24. [[18.]] (Currently Amended) The gamma correction circuit of Claim 21 [[15]], wherein the output circuitry comprises:

a first multiplier for calculating a first product from the first preliminary value and the first gain value;

a second multiplier for calculating a second product from the second preliminary value and a second gain value; and

an adder for adding the first and second products to generate a corrected output value.

25. [[19.]] (Currently Amended) The gamma correction circuit of Claim 21 [[15]], further comprising a set of at least one table for storing the first and second [[stored]] correction curves.

26. [[20.]] (Currently Amended) The gamma correction circuit of Claim 21 [[15]], further comprising a set of at least one table for storing the first and second gain value[[s]] matrix sets and circuitry for selectively accessing the first and second gain values from the selected set of gamma gain matrices in response to the [[desired]] gamma value [[function]].

27. [[21.]] (Currently Amended) The gamma correction circuit of Claim 21 [[15]], wherein the data value comprises a luma value.

28. [[22.]] (Currently Amended) A method of correcting a data value given a gamma value, comprising:

selecting in response to a desired gamma value first and second correction curves from a plurality of at least three gamma correction curves;

selecting in response to the input data value a set of gamma gain value matrices from a plurality of sets of gamma gain matrices;

in response to an input data value to be corrected, generating first and second preliminary values based on data selected from the first and second correction curves;

in response to the [[a]] desired gamma value, generating first and second gain values from the selected set of gamma gain matrices [[functions]]; and

combining the first and second preliminary values and the first and second gain values to generate a corrected output value.

29. [[23.]] (Cancelled)

30. [[24.]] (Cancelled)

31. [[25.]] (Currently Amended) The method of Claim 28 [[15]], wherein combining the first and second preliminary values and the first and second gain values comprises:

calculating a first product from the first preliminary value and the first gain value; calculating a first product from the second preliminary value and a second gain value; and

adding the first and second products to generate a corrected output value.

32. [[26.]] (Currently Amended) The method of Claim 28 [[15]], wherein [[generating first and second preliminary values comprises selecting first and second preliminary values from]] selecting first and second correction curves comprises selecting first and second stored correction curves from a plurality of at least three stored correction curves.

33. [[27.]] (Currently Amended) The method of Claim 32 [[16]], wherein the first and second stored correction curves are selected from first and second tables.

34. [[28.]] (Currently Amended) The method of Claim 28 [[15]], wherein generating first and second gain values comprises selecting one of first and second sets of gamma gain matrices [[values from]] stored in a set of tables.

35. [[29.]] (Currently Amended) The method of Claim 28 [[15]], wherein the data value comprises a luma value.

36. [[30.]] (Currently Amended) A method of [[generating a correction value for]] performing gamma correction on a received value, comprising:

generating [[first and second gamma functions]] a plurality of at least three gamma correction curves, wherein each gamma correction curve is indexed by received input values being gamma corrected and is selectable by a corresponding gamma value;

generating a plurality gain matrix sets each dynamically selectable by the received input values, wherein each gain matrix set includes a set of gain value matrices each selectable by a corresponding gamma value;

generating first and second gain values by dynamically selecting one of the gain value matrix sets with a current received input value and selecting one of the gain matrices within the selected gain matrix set with a desired gamma value;

generating first and second preliminary gamma corrected values by selecting first and second ones of the plurality of gamma correction curves with the desired gamma value and dynamically indexing the selected first and second gamma correction curves with the currently received input value; and

generating a current gamma corrected[ion] value by combining the first and second preliminary gamma corrected values [[functions]] and the first and second gain values.

37. [[31.]] (Cancelled)

38. [[32.]] (Cancelled)

39. [[33.]] (Cancelled)

40. [[34.]] (Currently Amended) The method of Claim 37 [[31]], further comprising storing the plurality of [[first and second]] gamma correction curves in at least one table.

41. [[35.]] (Currently Amended) The method of Claim 36 [[30]], wherein generating

first and second gain values comprises generating first and second cross - correlation values.

42. [[36.]] (Cancelled)

43. [[37.]] (Cancelled)

44. [[38.]] (Currently Amended) The method of Claim 36 [[30]], wherein generating a correction value by combining the first and second preliminary gamma [[functions]] corrected values and the first and second gain values comprises:

multiplying the first gain value and the first preliminary gamma corrected value [[function]] to generate a first product;

multiplying the second gain value and the second preliminary gamma corrected value [[function]] to generate a second product; and

summing the first and second products to generate the correction value.

45. [[39.]] (Currently Amended) A method of performing gamma correction on a received value comprising:

receiving an input value for gamma correction and an input gamma value;

combining a plurality of gamma corrected values taken from a pair of gamma correction curves, the pair of gamma correction curves selected from a plurality of gamma correction curves in response to the input gamma value, and plurality of gain values taken from one of a plurality of sets of gain matrices, the one of the plurality of sets of gain matrices selected in response to the input value for gamma correction to generate a gamma corrected output value.

46. [[40.]] (Currently Amended) The method of Claim 45 [[39]], wherein combining a plurality of gamma corrected values and a plurality of gain values comprises:

selecting at least two gamma corrected values from corresponding gamma correction curves;

selecting at least two gain values from a gain matrix indexed by the input gamma value and selected from one of the plurality of sets of gain matrices by the input value for gamma correction [[values]]; and

combining a first gamma value and a first gain value and a second gamma value and a second gain value to generate the gamma corrected output value.

47. [[41.]] (Currently Amended) The method of Claim 45 [[39]], wherein the received value for gamma correction comprises video data.

48. [[42.]] (Currently Amended) The method of Claim 47 [[41]], wherein the video data comprises luma data.